IN THE CLAIMS:

1. (Previously Presented) A direct sequence spread spectrum (DSSS) communication device, comprising:

a frequency generator that generates a local oscillator signal without use of a piezoelectric crystal;

a frequency converter that receives the local oscillator signal and mixes the local oscillator signal with a received DSSS signal to produce a down-converted signal, wherein the received DSSS signal is encoded using a first set of DSSS codes;

a differential detector that receives the down-converted signal and converts the down-converted signal to a differentially detected signal; and

a correlator that receives the differentially detected signal and correlates the differentially detected signal with a second set of DSSS codes,

wherein conversion by the differential detector of the down-converted signal to the differentially detected signal prior to correlation by the correlator of the differentially detected signal with the second set of DSSS codes is operable to mitigate effects of at least one of a frequency offset of the local oscillator signal relative to the received DSSS signal and a phase noise of the local oscillator signal.

2. (Previously Presented) The DSSS communication device according to claim 1, wherein the second set of DSSS codes are time-shifted from the first set of DSSS codes by an integer number of chip periods.

3. (Original) The DSSS communication device according to claim 1, wherein the differentially detected signal comprises output chips which are a function of a plurality of successive chips of the received DSSS signal.

4. (Original) The DSSS communication device according to claim 1, wherein the frequency generator has a frequency tolerance of less than approximately 0.12/T where T is the period of a chip.

5. (Previously presented) The DSSS communication device according to claim 1, wherein the frequency generator comprises one of an inductive-capacitive (LC) type oscillator, a resistive-capacitive (RC) type oscillator, a relaxation oscillator, a ring oscillator and a voltage controlled oscillator.

6. (Original) The DSSS communication device according to claim 5, further comprising means for initial adjustment of the frequency of the local oscillator signal.

7. (Previously presented) The DSSS communication device according to claim 5, further comprising a compensation circuit that compensates the frequency generator against changes in at least one of temperature or operating voltage.

8. (Original) The DSSS communication device according to claim 1, wherein the frequency converter comprises a multiple conversion frequency converter.

9. (Original) The DSSS communication device according to claim 1, wherein the down-converted signal comprises a baseband signal.

10. (Original) The DSSS communication device according to claim 1, wherein the down-converted signal comprises an intermediate frequency (IF) signal.

11. (Original) The DSSS communication device according to claim 1, further comprising:

an RF source for generating an RF transmitter carrier signal; and

a DSSS modulator that modulates a message to be transmitted onto the transmitter carrier signal using at least one known DSSS code.

12. (Original) The DSSS communication device according to claim 11, wherein the RF source comprises an oscillator that generates the RF transmitter carrier signal without use of a piezoelectric element.

13. (Original) The DSSS communication device according to claim 1, wherein the differential detector includes a processor that receives the down-converted signal and produces output chips therefrom which are a function of a plurality of successive chips of the received DSSS signal.

14. (Original) The DSSS communication device according to claim 13, wherein the correlator correlates output chips at the output of the processor to at least one DSSS code that has been derived from the received DSSS signal.

15. (Previously Presented) The DSSS communication device according to claim 1, further comprising:

an RF source that generates a transmitter carrier signal, wherein the RF source comprises an oscillator that generates the RF transmitter carrier signal without use of a piezoelectric element; and

a DSSS modulator which modulates a message to be transmitted onto the transmitter carrier signal using at least one known DSSS code word.

16. (Previously presented) The DSSS communication device according to claim 15, wherein the frequency generator comprises one of an inductive-capacitive (LC) type oscillator, a resistive-capacitive (RC) type oscillator, a relaxation oscillator, a ring oscillator and a voltage controlled oscillator.

17. (Original) The DSSS communication device according to claim 15, further comprising means for initial adjustment of the frequency of the RF transmitter carrier signal.

18. (Cancelled)

19. (Previously Presented) A direct sequence spread spectrum (DSSS) communication method, comprising:

generating a local oscillator signal without use of a piezoelectric crystal;

mixing the local oscillator signal with a received DSSS signal to produce a down-converted signal, wherein the received DSSS signal is encoded using a first set of DSSS codes;

differentially decoding the down-converted signal to create a differentially detected signal; and

correlating the differentially detected signal with a second set of DSSS codes,

wherein differentially decoding the down-converted signal to create the differentially detected signal prior to correlating the differentially detected signal with the second set of DSSS codes is operable to mitigate effects of at least one of a frequency offset of the local oscillator signal relative to the received DSSS signal and a phase noise of the frequency generator.

20. (Original) The DSSS communication method according to claim 19, wherein the second set of DSSS codes is time-shifted from the first set of DSSS codes by an integer number of chip periods.

21. (Original) The DSSS communication method according to claim 19, wherein the differentially detected signal comprises output chips which are a function of a plurality of successive chips of the received DSSS signal.

22. (Previously presented) The DSSS communication method according to claim 19, wherein the local oscillator signal is generated using one of an inductive-capacitive (LC) type oscillator, a resistive-capacitive (RC) type oscillator, a relaxation oscillator, a ring oscillator and a voltage controlled oscillator.

23. (Original) The DSSS communication method according to claim 19, further comprising:

generating an RF transmitter carrier signal; and

modulating a message to be transmitted onto the transmitter carrier signal using at least one known DSSS code.

24. (Original) The DSSS communication method according to claim 23, wherein the RF transmitter carrier signal is generated without use of a piezoelectric element.

25. (Previously presented) The DSSS communication method according to claim 19, further comprising:

generating an RF transmitter carrier signal; and

modulating a message to be transmitted onto the transmitter carrier signal.

26. (Previously presented) The DSSS communication method according to claim 19, wherein:

the local oscillator signal serves as an RF source for generating an RF transmitter carrier signal; and further comprising:

modulating a message to be transmitted onto the transmitter carrier signal.

27. (Previously presented) The DSSS communication device according to claim 1, further comprising:

an RF source for generating an RF transmitter carrier signal; and

a modulator that modulates a message to be transmitted onto the transmitter carrier signal.

28. (Previously presented) The DSSS communication method according to claim 19, wherein:

the local oscillator signal serves as an RF source for generating an RF transmitter carrier signal; and further comprising:

a modulator that modulates a message to be transmitted onto the transmitter carrier signal.

29. (Previously Presented) A direct sequence spread spectrum (DSSS) communication device, comprising:

a frequency generator that generates a local oscillator signal without use of a piezoelectric crystal;

a frequency converter that receives the local oscillator signal and mixes the local oscillator signal with a received DSSS signal to produce a down-converted signal, wherein the received DSSS signal is encoded using a first set of DSSS codes;

a differential detector that receives the down-converted signal and converts the down-converted signal to a differentially detected signal, wherein the differentially detected signal comprises output chips which are a function of a plurality of successive chips of the received DSSS signal;

a correlator that receives the differentially detected signal and correlates the differentially detected signal with a second set of DSSS codes;

wherein the frequency generator has a frequency tolerance of less than approximately 0.12/T where T is the period of a chip;

an RF source for generating an RF transmitter carrier signal, wherein the RF source comprises an oscillator that generates the RF transmitter carrier signal without use of a piezoelectric element; and

a DSSS modulator that modulates a message to be transmitted onto the transmitter carrier signal using at least one known DSSS code,

wherein conversion by the differential detector of the down-converted signal to the differentially detected signal prior to correlation by the correlator of the differentially detected signal with the second set of DSSS codes is operable to mitigate effects of at least one of a frequency offset of the local oscillator signal relative to the received DSSS signal and a phase noise of the frequency generator.

30. (Previously Presented) The DSSS communication device according to claim 1, wherein the second set of DSSS codes is a differentially detected set of DSSS codes.

31. (Previously Presented) The DSSS communication device according to claim 29, wherein the second set of DSSS codes is a differentially detected set of DSSS codes.

32. (Previously Presented) The DSSS communication device according to claim 15, further comprising a compensation circuit that compensates the RF source against changes in at least one of temperature or operating voltage.